

Abstract of the Disclosure

An etching method for silicon oxide film by fluorocarbon plasma in semiconductor production, which is superior in precise manufacturing and highly selective to resist and silicon nitride film, includes generating two kinds of electronic temperature regions in plasma, and controlling a generation ratio of CF_2/F independently from a generation amount of ions by making areas of the two electronic temperature regions variable with a magnetic field gradient and a distance between a wafer and a wafer facing plane.